

Interactive comment on “River flooding as a driver of polygon dynamics: modern vegetation data and a millennial peat record from the Anabar River lowlands (Arctic Siberia)” by R. Zibulski et al.

Anonymous Referee #1

Received and published: 29 March 2013

The paper of Zibulski et al. is a well-written and very informative article. The authors present an interesting study of spatial structure of typical low-centered polygon, past changes in biotic and abiotic environments and mechanisms driving polygon dynamics recorded in a millennial peat record from the Anabar River lowlands (Arctic Siberia). The main idea of the manuscript is that the polygon development is affected by riverine influences in addition to climatic impact. I feel this paper contributes significantly to this field and can be published.

Specific comments: Page 4071, lines 23-24: “widely spaced dwarf shrub tundra (*Betula exilis*, *Salix pulchra*), dwarf shrub tundra (*Cetraria cucullata* together with *Alectoria*

C641

ochroleuca, *Coelocaulon divergens*)”. The dominants of dwarf shrub tundra must be shrub high-vascular species. In the second case, it is mosses. Please, paraphrase this sentence. Page 4072, line 10: “according to the Braun-Blanquet floristic approach”. Here should be the reference. Page 4079, lines 3-4: “Most abundant were *Meesia triquetra* and *Scorpidium scorpioides*, while subdominant were *Drepanocladus* spp., *Hamatocaulis vernicosus* and *Calliergon* sp.” It is not true. *Scorpidium scorpioides* is most abundant in upper part of the core; *Meesia triquetra* is abundant in the middle part, but not exceed 40%, while e.g. *Drepanocladus cossinii* and *Hamatocaulis vernicosus* amount to 50-60% in some subunits. Paraphrase this statement more accurate. Page 4086, line 5: “Klemm et al., 2013”. I am not sure that it is correctly to cite submitted, but not accepted manuscript. I was not be able to verify you statements, for example.

Figures I did not find the reference to Fig. 11 in the text. Figs 4,6,7,8,10,A2,A3: You use subdivision of Units and Subunits in the text, however, in the figures you use “Unit 1.1, Unit 2.2” etc. It should be rewritten as “Subunit 1.1, Subunit 2.2” etc. Fig. 7: Please, check column “herbs, shrubs, trees”. *Betula* sect. *Nanae* and *Alnus fruticosa* are not trees, they are shrubs. I do not understand why there are such high percentages of trees and such low percentages of herbaceous pollen. Fig. 10: The title should be “Summary plot of important indicator records from Core C”. “Taiga” and “tundra” are not “vegetation form”. It is vegetation type or biom. I think it is not correct to use “taiga” in this case. *Alnus fruticosa* is not a marker of taiga. You can use some climatic definitions - more humid and warm versus arid and cold.

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/10/C641/2013/bgd-10-C641-2013-supplement.pdf>

Interactive comment on Biogeosciences Discuss., 10, 4067, 2013.

C642